

WHEN NEWARK WAS YOUNGER

Home of Inventors

THIS week New Jersey honors its most famous inventor, Thomas Edison, whose birthday is February 11. To Edison, as to numerous other inventors, Newark offered opportunities for success, for productivity and for fame.

If asked to nominate New Jersey's greatest inventor, Thomas Edison would probably have chosen Newark's Seth Boyden, a man whose name appears all too seldom in the many histories of American invention. Mr. Edison thought him "one of America's greatest inventors, and one who has never received proper credit for his many great and practical inventions."

"They have been," said Mr. Edison, "the basis of great industries which have spread over the entire world and give employment to millions of people."

The little credit given to Seth Boyden by historians may be partially due to the modest and unassuming inventor himself. Ever careless of fame, he was too busy to pay attention to money-making, and he neglected to patent many of his inventions though the United States had patent laws as early as 1790.

Like Mr. Edison, Seth Boyden was not Newark-born. He came here from Foxborough, Mass., in 1815, probably because of our dominant leather industry, for his father, Seth Boyden Sr., had invented a machine for splitting leather which the 27-year-old mechanic brought here with him. Some say young Boyden was attracted to Newark by the educational opportunities for mechanics and apprentices in which Moses Combs was a leader,



Thomas A. Edison beside monument erected by pioneer workers at Menlo Park.

for his formal education had been limited to two months a year in the district schools of his native state.

AT any rate, Seth Boyden set up a harness-making shop in his home near the corner of Broad and Bridge streets, and it was in this neighbor-

hood that he made his inventions and established foundries, one at High and Orange streets, the other between Broad street and the Passaic River.

His great versatility is shown in the long list of his inventions. He was the first in this country to make patent leather, he developed improved driving rods for locomotives and perfected the manufacture of stationary steam engines and grates for zinc furnaces. In 1831 he patented his process for making malleable cast iron. The hat-forming machine he invented was an important contribution to the hatting industry of Essex County.

He built the first camera in this country, and made the first Daguerrotype in the United States, helped Morse with the electric telegraph and constructed an electric clock, electric fountain and an electric barometer for his own home. When, reduced to poverty, he was given a farm at Hilton (now part of Maplewood) by industrialists who had profited by his inventions, he experimented with hybridizing strawberries and produced the Boyden or Hilton strawberries, so large that they ran 15 berries to the quart. Just before he died in 1870, he told a friend that he had plans for enough experiments and inventions to fill two life times.

IN contrast to the great practicality of Seth Boyden's inventions, was the unsuccessful attempt by another Newarker of his period to produce a "horseless carriage." Zadoc Dederick, a Newark pattern maker, was the inventor. A "steam man," designed to replace horses as a puller of carriages, was actually constructed from plans made by Dederick and tried out in 1868 in a run around Military Park.

Contemporary pictures, and the recollection of old inhabitants actually confirm the existence of the creature which bore a superficial resemblance to the modern robot, "Pedro the Voder." After three unsuccessful models were built, the contrivance was sent to New York and there disappeared.

The "steam man" had a boiler for his torso, a high stove pipe hat of iron for a smoke stack. A real coat and

Seth Boyden (upper left), whose modesty caused him to be overlooked by historians, was regarded by Mr. Edison as "one of America's greatest inventors." Versatile in many fields, he patented in 1831 a process for making malleable cast iron. One of his designs (left) is now at Newark Technical School. He lived in home (above) at Lackawanna avenue before retiring to Hilton farm where he developed giant strawberries.



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NEWARK'S INVENTORS

(Cont'd from Preceding Page)
Gloves were worn, while a wooden face, like that of Captain Jinks who now stands in the Newark Museum, was supposed to fool the horses he encountered into thinking he was really a man and not one of those terrifying locomotives.

Feet of metal were connected to driving shafts to propel him over the ground, while he pulled the shafts of a carriage, but it happened the feet could not accommodate themselves to the cobble stones of Newark. Not only that, but the "steam man" had to be refueled every three hours by his driver who unbuttoned the creature's coat and vent, opened a little door, and shoveled in some coal, transported in the back of the carriage.

THE year of Eadweard Muybridge's demonstration of the "steam-man" in Newark, young Thomas A. Edison appeared in Boston as a telegraph operator. Even then showing the promise of his great achievements as an electrical inventor, Mr. Edison was experimenting with the sending of two messages at the same time on the overloaded wires of that period. Before long he had made several improvements in telegraph instruments which brought him to the attention of General Marshall Lefferts, head of the Gold and Stock Telegraph Co., connected with the New York Stock Exchange.

It was General Lefferts who persuaded Mr. Edison to work with a shop in Newark where stock ticker instruments were manufactured. Mr. Edison's improvements here were so valuable that the general offered him \$40,000 for all the inventions the firm did not already own.



Young Edison in 1860 and his "incandescent lamp."



With this sum Mr. Edison was able to open his own manufacturing establishment in Newark in 1870.

In the third story of a building in Ward street Mr. Edison began manufacturing stock tickers for sale to General Lefferts. Employing 18 men he drew around him workers with mechanical ingenuity and a devotion to scientific advancement second only to his own. Several of the mechanics were immigrants, one scarcely able to speak English. "What difference does that make?" demanded Mr. Edison. "His work speaks for him."

THE astonishing qualities of concentration for which Thomas Edison is known were evident in those early Newark days. Asked to improve an imperfect system of recording telegraph messages without the use of an operator, Mr. Edison gathered together a stack of technical books and studied them night and day for six weeks, making abstracts, working out formulas, performing experiments. He ate at his desk and slept in his chair, producing in the end improvements that resulted in the automatic re-

coding of 200 words a minute. Edison expected the same intense effort from his employees. Faced one day with a \$30,000 order for stock printers and becoming involved in mechanical difficulties, Mr. Edison locked a picked group of workmen in the shop and told them they could not leave until the stock printer worked. In 60 hours the job was accomplished.

In the six years that he spent in Newark, Mr. Edison perfected duplex and multiplex telegraphy, saving incredible amounts in line construction for the telegraph companies. He helped a Milwaukee inventor named Sholes to complete the first typewriter, using it in the automatic telegraph office. He invented a machine for duplicating printed matter which he sold to the A. B. Dick Co., and which we know today as the mimeograph.

IN the Fall of 1875 Thomas Edison sent for his father to come down from Port Gratiot on Lake Huron to help him. Samuel Edison's assignment was an unusual one—to drive about North Jersey with a horse and wagon in search of a secluded site for a new and larger laboratory and manufacturing plant. Menlo Park was the place selected, and here Mr. Edison developed his greatest inventions, the incandescent lamp and the "talking machine."

Most famous of Mr. Edison's assistants during his years in Newark was John Kruesi, a Swiss machinist who came to this country in 1870. While working for the Singer Manufacturing Co. in New York he became deeply interested in Mr. Edison's experimental work and came to Newark in 1871 at considerable financial sacrifice.

His best known invention was the "Kruesi tube," a system of watertight underground tubes for distributing electricity, developed in the installation of electric lighting in New York City. Becoming superintendent of the Edison Machine Works in New York in 1881, he was an engineer for the General Electric Co. at the time of his untimely death in Schenectady in 1890.

ANOTHER inventor who came to Newark in his youth
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Richard Ranger and "pipes" of his electric organ.



Edison's first lab on Ward street (McCarter Highway).

was Winfield Scott Sims. Born in New York in 1844, he arrived here young enough to graduate from the old Newark High School and to serve with the 37th New Jersey Regiment in the Civil War. His work was in the field of ordnance manufacture, his most important invention being the dynamite breach gun used at the Battle of Santiago in the Spanish American War. A submarine boat, and electrically propelled torpedoes were also among his inventions, and at the time of his death in 1918 he was experimenting with a cruiser to carry dynamite and to be operated by remote control.

It is not generally known that Paterson's submarine inventor, John P. Holland, lived several years in Newark, first on Garfield street, later at 38 Newton street. He came here about 1893 from Paterson, but he was Irish born and his first interest in the possibility of submarine warfare was inspired by his desire to aid the Irish Revolutionaries against England.

It was the Fenian Society which financed his first experimental submarine, a one-man affair which sank immediately in the shallows of the Passaic River. A group of young Patersonians, out for a Sunday stroll in 1927, unearthed it from the muddy bottom and presented it to the Paterson Museum, where it now shares a stair landing with a stuffed two-headed calf.

Mr. Holland's "Fenian Ram," a 30-foot model which the inventor hoped could cross the Atlantic to harass the British fleet, was launched in the Hudson in 1881, and is now displayed in Paterson's East Side Park. At length the United States Navy became interested in Mr. Holland's designs, and bought his 53-foot sub, the Holland, launched in the Crescent Shipyards in Elizabeth in 1898. To Mr. Holland belongs the credit for developing the first submarine having the power to navigate when deeply submerged.

A FAR greater influence upon the industrial life of Newark was brought to bear by John Wesley Hyatt. Born in New York State in 1837, he was an Albany printer when he became interested in an of-

fer by a New York City firm of \$10,000 to any one who could develop a substitute for ivory for use in billiard balls. His resulting discovery of celluloid became the foundation of our great plastics industry.

He and his brother Isaiah induced their New York backers to finance them in a celluloid factory in Newark about 1872. Ten years later the versatile John Wesley Hyatt started the Hyatt Pure Water Co., developing filtering systems for municipalities and industries, and in 1892 he devised the famous Hyatt roller bearings, founding the Hyatt Roller Bearing Co. of Harrison. Before his death in Short Hills in 1920, Hyatt had invented a superior sugar cane mill, a sewing machine capable of making 50 lock stitches at once, a machine for turning out billiard balls and many other practical and labor saving devices.

AMONG all the inventors, perhaps Newark's greatest benefactor was Edward Weston. English born, he had been in this country only five years when he came to Newark in 1875. He had already made a name for himself as

an authority on dynamite and an expert in electroplating. Setting up a laboratory in the house he occupied in Eighth avenue, he was soon engaged by Stevens, Roberts & Havell, manufacturers of art metal objects, to produce electroplating machines in their factory in Washington street.

That was the beginning of an amazing career in invention, in the manufacture of electrical instruments, and in the constant litigation that was a part of the cut-throat competition of the late 19th Century. All this is told in expert detail in David Woodbury's biography of Weston published late in 1949. Thoroughly public-spirited, Edward Weston was one of the principal organizers of the Newark District Telegraph Co., a leading inventor and promoter in the Newark Domestic Telephone & Telegraph Co.

To the Newark College of Engineering he left at his death in 1936 his library, his laboratory apparatus and equipment, his drawings and his legal and scientific papers, together with a fund for maintenance. The college and the Weston Electrical Instrument Co. which he founded are a living memorial.

A HOST of other inventors add to Newark's fame—Hannibal Goodwin, rector of the House of Prayer, who produced flexible protograph film; Dr. Exton, who invented the gastroscope; George Murdock, who developed self-sealing fuel tanks for war planes; Louis Aronson, who designed the Ronson lighter, and Richard Ranger, who invented the photo-radiogram and the electric organ chimes.

To this list new names are added each year, in this city of diversified industry which has attracted men of initiative and perseverance from many lands.



Rev. Hannibal Goodwin



Edward Weston



John W. Hyatt



George Murdock